ISO/TC 197
Hydrogen technologies

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Background: Here is the liaison report from ISO/TC 58/SC 3.

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Secretariat of ISO/TC 58/SC 3
Gas cylinders — Cylinder design

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ISO/TC 58/SC 3, *Gas Cylinders – Cylinder design*

Liaison Report for the meeting of ISO/TC 197, *Hydrogen technologies*, 8th & 9th December 2016

Extract from the draft report of the 2016 meeting of ISO/TC 58/SC 3

14 ISO/TC 197, Hydrogen technologies

A liaison report from Dr Barthélémy is attached as **Annex G.**

14.1 Overview of the liaison

The scope of ISO/TC 197 is;

> Standardization in the field of systems and devices for the production, storage, transport, measurement and use of hydrogen.

The next plenary meeting will be held on 8th and 9th December, 2016 in Netherlands.

14.2 ISO/TC 197/WG 15, Gaseous hydrogen - Cylinders and tubes for stationary storage

Work item: ISO/CD 19884, *Gaseous hydrogen – Cylinders and tubes for stationary storage*

The next meeting scheduled for 5th and 6th December would address the comments received during the 2nd CD ballot.

14.3 Joint working groups – ISO/TC 197 lead

ISO/TC 197/WG 18, Gaseous hydrogen land vehicle fuel tanks and TPRDs

Work items: ISO/CD 19881, *Gaseous Hydrogen -- Land Vehicle Fuel Tanks*, CD enquiry

> ISO/CD 19882, *Gaseous hydrogen -- Land vehicle fuel tanks -- Thermally activated pressure relief devices*

The next meeting scheduled for December 2016 would address the comments received during the two CD ballots.

ISO/TC 197/WG 25, Hydrogen absorbed in reversible metal hydride

Work item: ISO/CD 16111, *Transportable gas storage devices -- Hydrogen absorbed in reversible metal hydride*

The CD comments had been resolved by a teleconference in September 2016. The document was now being prepared for DIS ballot.

In parallel a TR (or TS) is under development at preliminary stage to consider the following issues that are currently outside the scope of ISO/CD 16111.

- Shell having internal volume greater than 150L;
- Fuel storage on-board hydrogen fuelled vehicles
- Stationary applications

Work programme – Significant developments in the last 12 months

ISO standards published

ISO 11119-4, *Gas cylinders – Refillable composite gas cylinders and tubes – Design, construction and testing – Part 4: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing welded metallic liners*

New work proposals

From USA to:

Amend ISO 11513: 2011*, Gas cylinders – Refillable welded steel cylinders containing materials for sub-atmospheric gas packaging (excluding acetylene) – Design, construction, testing, use and periodic inspection*

From Germany to:

Amend ISO 11118:2015*, Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods*

From Canada to:

Amend ISO 21172-1:2015, *Gas cylinders - Welded steel pressure drums up to 3 000 litre capacity for the transport of gases - Design and construction - Part 1: Capacities up to 1 000 litres, disallows the use of such pressure drums*

Selected resolution passed by ISO/TC 58/SC 3 on 20th October 2016

Resolution 084/2016

Subject: ISO/TR 13086-2 – Ballot for approval to publish

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Acknowledges;

- Resolution 066/2015 taken at the last meeting to register new work item:
  ISO/TR 13086-2, *Gas cylinders – Guidance for design of composite cylinders Part 2: Bonfire test issues*
- the work carried out by WG 24 during 2016

Accepts;

- the report from the convenor of WG 24 that ISO/NP TR 13086-2 is now sufficiently developed that no significant technical issues are outstanding

Decides;

- that the draft should be circulated to SC 3 for comment only – not ballot to approve to publish

Unanimous

Resolution 085/2016

Subject: ISO/TR 13086-3 & ISO/TR 13086-4 – Change in development track

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Acknowledges;

- Resolutions 067 & 068/2015 taken at the last meeting to register the following two new items:
    - ISO/TR 13086-3, Gas cylinders – Guidance for design of composite cylinders Part 3: Calculation of stress ratios
    - ISO/TR 13086-4, Gas cylinders – Guidance for design of composite cylinders Part 4: Cyclic fatigue of fibres and liners
- the work carried out by WG 24 during 2016

Accepts;

- The report from the convenor of WG 24 that although the progress had been made over the past 12 months it was unlikely that drafts will be sufficiently developed for publication in the next 12 months

Decides;

- to move these projects from the 24 months to 36 months development track

Unanimous

Resolution 086/2016

Subject: Revision of ISO 9809-1:2010 – Change of scope and title

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Accepts;

- A request from the convenor of WG 26 on behalf of the working group for a change in the title and scope of the revision of ISO 9809-1

Decides;

- To change the title to:
  Gas cylinders - Design, construction and testing of refillable seamless steel gas cylinders and tubes -
  Part 1:
  Quenched and tempered steel cylinders and tubes with tensile strength less than 1 100 MPa
- The scope to:

This part of ISO 9809 specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at time of manufacture for;

- refillable seamless steel gas cylinders and tubes
- water capacities up to and including 450 l
- compressed, liquefied and dissolved gases
- quenched and tempered steel cylinders and tubes with a maximum actual tensile strength R_{ma} of less than 1 100 MPa

Unanimous

Resolution 087/2016

Subject: Revision of ISO 9809-2:2010 – Change of scope and title

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Accepts;

- A request from the convenor of WG 26 on behalf of the working group for a change in the title and scope of the revision of ISO 9809-2

Decides;

To change the title to:
Gas cylinders — Design, construction and testing of
refillable seamless steel gas cylinders and tubes—
Part 2:
Quenched and tempered steel cylinders and tubes with
tensile strength greater than or equal to 1 100 MPa

To change the scope to:

This part of ISO 9809 specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at time of manufacture for;

- refillable seamless steel gas cylinders and tubes
- water capacities up to and including 450 l
- compressed, liquefied and dissolved gases.
- quenched and tempered steel cylinders and tubes with an actual tensile strength $R_{ma} \geq 1$ 100 MPa.

It is not applicable to;

- cylinders and tubes with $R_{ma,\,max} > 1\,300$ MPa for diameters > 140 mm and guaranteed wall thicknesses $a' \geq 12$ mm and
- cylinders and tubes with $R_{ma,\,max} > 1\,400$ MPa for diameters ≤140 mm and guaranteed wall thicknesses $a' \geq 6$ mm;

because beyond these limits, additional requirements can apply.

Unanimous

Resolution 088/2016

Subject: Revision of ISO 9809-3:2010 – Change of title and scope

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Accepts;

- A request from the convenor of WG 26 on behalf of the working group for a change in the title and scope of the revision of ISO 9809-3

Decides;

To change the title to:
Gas cylinders — Design, construction and testing of refillable seamless steel gas cylinders and tubes—
Part 3:
Normalized steel cylinders and tubes

To change the scope to:
This part of ISO 9809 specifies minimum requirements for the material, design, construction and workmanship, manufacturing processes, examination and testing at the time of manufacture for;

- refillable seamless steel gas cylinders and tubes
- water capacities up to and including 450 l
- compressed, liquefied and dissolved gases
- normalized or normalized and tempered steel cylinders and tubes.

Unanimous

Resolution 094/2016

Subject: ISO/TR 19811 – Ballot for approval to publish

ISO/TC 58/SC 3: *Gas cylinders – Cylinder design*
Accepts;

- the recommendation from the convenor that the draft technical report should be balloted for approval to publish

Decides;

- to submit the draft prepared by WG 36 to ballot to publish

Asks;

- The convenor to provide the secretary with a draft suitable for ballot, in 'word' format, by the end of November 2016

Voting

For: Austria, Canada, China, Czech Republic, Finland, France, Germany, Italy, Japan, Korea, Norway, Portugal, South Africa, Sweden, UK, (15)
Against: Nil (0)
Abstain: USA (1)